REMARKS

Applicants have carefully considered the June 3, 2005 Office Action, and the amendments above together with the comments that follow are presented in a bona fide effort to address all issues raised in that Action and thereby place this case in condition for allowance. Claims 1-8 were pending in this application. Claims 5-8 have been withdrawn from consideration pursuant to the provisions of 37 C.F.R. § 1.142(b). By way of this Amendment, claim 9 has been added. Care has been exercised to avoid the introduction of new matter. Adequate descriptive support for the present Amendment should be apparent throughout the originally filed disclosure as, for example, the depicted embodiments and related discussion thereof in the written description of the specification. Applicants submit that the present Amendment does not generate any new matter issue. Entry of the present Amendment is respectfully solicited. It is believed that this response places this case in condition for allowance. Hence, prompt favorable reconsideration of this case is solicited.

Claims 1-4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakahata et al. (U.S. Pat. No. 6,284,690, hereinafter "Nakahata") in view of Kato et al. (U.S. Pat. No. 5,603,877, hereinafter "Kato"). The Examiner asserted that Nakahata discloses the method of claim 1 but for a nitrogen pressure of 0.1-1 atmosphere. The Examiner concluded that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a nitrogen pressure of at least 0.1 or 5-20 atmG as suggested by Kato, because Kato discloses a sintering pressure in a sintering process for making silicon nitride to obtain a more dense ceramic structure and because Nakahata discloses heating in a nitrogen atmosphere, which according to the Examiner, at least suggests an ambient pressure of one atmosphere. Applicants respectfully traverse.

Applicants submit that the Examiner has not established a *prima facie* basis to deny patentability to the claimed invention under 35 U.S.C. § 103 for lack of the requisite factual basis and lack of the requisite realistic motivation. *Smiths Industries Medical System v. Vital Signs Inc.*, 183 F.3d 1347, 51 USPQ2d 1415 (Fed. Cir. 1999). In particular, the Examiner has failed to provide any motivation to modify the methodology of Nakahata with that of Kato.

Applicants submit that claim 1 and newly added claim 9 are free from the applied art. Nakahata fails to clearly separate the nitriding step (step (e) of claim 1) and the sintering step (step (f) of claim 1), since Nakahata fails to disclose or remotely suggest any condition of pressure in the sintering step. The Examiner's assumption as to Nakahata disclosing "an ambient pressure of one atmosphere" is not based on the requisite factual basis, but rather is improperly predicated upon speculation. *Electro Medical Systems S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 32 USPQ2d 1078 (Fed. Cir. 1994); *Continental Can Co. USA, Inc. v. Monsanto Co.*, 948 F.3d 1264, 20 USPQ2d 1746 (Fed. Cir. 1991); *In re Oelrich*, 666 F.2d 578, 212 USPQ 329 (CCPA 1981).

Moreover, the Examiner relied on the secondary reference to Kato in an attempt to remedy the deficiencies of Nakahata. However, Kato, at col. 4, lines 48-52, describes the benefit of selecting the condition of pressure in the sintering step as follows: "if sintering under a controlled atmosphere of pressurized gas or sintering by hot isostatic press (HIP) is used, a denser ceramic structure may be obtained as a result of further suppression of the decomposition of silicon nitride." In contrast, as described in the written description of the present specification (page 8, paragraph 27 through page 9, paragraph 3), in accordance with the method of producing the porous Si_3N_4, the low nitrogen pressure of 0.1-1 atmosphere (0.01.-0.1 MPa) is employed for sintering to make Si_3N_4 aggressively decompose and re-precipitate, to thereby obtain thinner

columnar crystals as well as higher porosity and higher aspect ratio. At the time of sintering, the sintering agent takes a liquid phase, and β-type Si_3N_4 grows from the Si_3N_4 dissolved in the liquid phase to form columnar crystals. Since the columnar crystals stop growing when they run against obstacles, a sintered body having a higher aspect ratio can be obtained with the nitride body of higher porosity. Applicants submit that such a difference is attributable to the fact that Kato uses silicon nitride particles, rather than Si powder, as the starting material, and is also because the object of the invention of Kato is completely different from the object of the present invention. Kato discloses that an object of its invention is to provide an improved method for producing sintered bodies of silicon nitride having high strength and toughness and high wear resistance. See Kato at col. 1, line 34-37.

Independent claim 9 has been added to further describe the pressure of the nitrogen atmosphere in the nitriding step. This claim limitation is also present in dependent claim 3. Applicants submit that such a condition of pressure in the nitriding step is neither disclosed nor suggest in Nakahata alone, or in combination with Kato. The Examiner asserted that Kato suggests the condition of pressure in the sintering step. However, there is no disclosure of a nitriding step itself in Kato, since Kato uses the silicon nitride particles as the starting material.

Furthermore, neither Nakahata nor Kato suggests or teaches the condition of pressure in the nitriding step, and neither reference recognizes the problems that arise when the relevant condition of pressure is not met. In accordance with the present invention, if the nitriding step is conducted in the nitrogen atmosphere of more than 10 atmospheres, the reaction becomes fast, the cost required for the device will be too high, and the operation will be degraded. See the present specification at page 8, paragraphs 12 to 17.

It is believed that all pending claims are now in condition for allowance. Applicants therefore respectfully request an early and favorable reconsideration and allowance of this application. If there are any outstanding issues which might be resolved by an interview or an Examiner's amendment, the Examiner is invited to call Applicants' representative at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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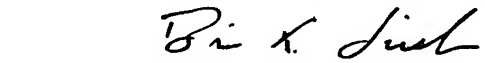

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